REMARKS

Claims 1-38 stand rejected. Applicant has amended independent claims 1, 22, 24 and 33 to clarify the present invention. Dependent claims 15-18 and 20-21 have been amended to conform to their amended parent claims and improve form. Claims 34-36 have been corrected to correct obvious drafting errors. Claim 14 has been cancelled. The foregoing amendments do not add any new matter. Applicant respectfully requests reconsideration of the rejections in view of the above amendments and the following remarks.

35 U.S.C. § 112 Rejections

Claims 1-23 and 33-38 were rejected to under 35 U.S.C. § 112 as being indefinite, misdescriptive and failing to clearly and distinctly set forth the subject matter. The Examiner cited claim 1 as an example and stated that the recitation therein of a satellite "generating a plurality of signals having integrity information that is generated offboard" the satellite is contradictory since the limitation of "generated offboard" contradicts the language of a "satellite generating a plurality of signals".

In response, Applicant has amended independent claims 1 and 22 to recite "a central station generating integrity signals having integrity information" and that the satellite receives said integrity signals. Independent claim 33 has been similarly amended to recite "transmitting integrity information from a central station to at least one non-geostationary satellite." Support for these amendments can be found in the specification at paragraphs 0023-0024, 0033-0034.

Applicant submits that claims 1, 22, and 33, as amended, overcome the rejection under 35 U.S.C. §112. Claims 2-21, 23, and 34-36 (as amended) depend respectively from claims 1, 22 and 33 and overcome the rejection under 35 U.S.C. §112 for the same reasons as their respective parent claims.

Claim 24 was rejected as being indefinite. Specifically, the Examiner stated that the phrase "said at least one satellite" in line 3 lacked antecedent basis. The Examiner further stated that the claim is directed to the navigation receiver and the language "which is generated offboard said at least one satellite" fails to add any limitation to the claimed subject matter.

Applicant has amended claim 24 to delete the language "which is generated offboard said at least one satellite". Claim 24 was further amended to recite that the integrity information is "transmitted to said at least one non-geostationary satellite from a central station" and that the navigation receiver "has integrity-monitoring software for utilizing said integrity information." Support for these amendments can be found in the Specification at paragraphs 0023-0024, 0031-0034, 0043-0044, and 0058.

Applicant submits that claim 24, as amended, overcomes the rejection under 35 U.S.C. §112. Claims 37-38 depend from claim 24 and overcome the rejection under 35 U.S.C. §112 for the same reasons as claim 24.

35 U.S.C. § 102(e) Rejections

Claims 24-32, 37 and 38 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,850,187 to *Clark*. Applicant respectfully traverses this ground of rejection.

The Examiner states that *Clark* discloses a navigation receiver that determines the accuracy of the ranges and position of the satellites and of the receiver on the basis of integrity information. Applicant respectfully disagrees on the ground that Examiner appears to have misunderstood what is disclosed in *Clark*.

In *Clark*, the accuracy of the ranges and position of the satellite and of the receiver is not determined by the receiver as required by claim 24 but rather, by the satellite itself or, alternatively, other satellites. For example, "[t]he system provides a means for each GPS satellite itself to verify the accuracy and/or integrity of its own operations by calculations and processing internal to the GPS satellite and by crosslink communications with other GPS satellites in the GPS constellation." (*Clark* at col. 3, lines 4-8.) "The Satellite Signal Waveform monitor system allows the GPS satellite to receive its own transmissions and check the integrity of its own transmissions. The Satellite Position Monitor system provides the GPS satellite the capability to send its transmissions to one or more other GPS satellites which then verify the integrity of the transmissions from the originating GPS satellite and send back an integrity message indicating the integrity of the transmissions. The GPS Beacon allows the GPS satellite to verify its operation by receiving a signal from a beacon at a fixed known location." *Clark* at col. 3, lines 51-60 (emphasis added). *See also*: *Clark* at col. 3, lines 11-30, col. 7, lines 39-60, and col. 9, lines 1-18.

In addition, claim 24 has been amended to clarify that the integrity information in the plurality of signals sent out by a non-geostationary satellite are transmitted to the satellite from a central station and further, that the navigation receiver has "integrity-monitoring software for utilizing said integrity information." In contrast, the integrity messages of *Clark* are generated by and sent out by satellites (see above) rather than a central station. Further, nothing in *Clark* discloses or suggests a receiver having integrity-monitoring software for utilizing the integrity information. As discussed above, in *Clark* the accuracy of the ranges and position of the satellites and of the receiver is determined by the satellite, which then sends integrity messages to GPS receivers. *Clark*, col. 4, lines 51-55. Thus, the integrity message of *Clark*, by itself, already indicates the integrity of the GPS signals from the satellite. *Clark*, col. 4, lines 32-50. The GPS receiver of Clark merely has to decode the integrity message. *Clark*, col. 4, lines 51-53.

Based on the foregoing, Applicant submits that claim 24 is allowable over *Clark*. Claims 25-32 and 37-38 depend from claim 24 and are allowable for the same reasons as their parent claim.

35 U.S.C. §102(a) and (b) Rejections

Claims 1-38 were rejected under 35 U.S.C. §102(b) as being anticipated by either *Hein* ("Status of Galileo Frequency and Design") or *Benedicto* ("GALILEO: Satellite System Design and Technology Developments"). Claims 1-36 were also rejected under 35 U.S.C. §102(a) as being anticipated by either *Musmeci* ("GALILEO: Overview of the Programme and Mission") or *Galilei* ("The Galilei Project: GALILEO Design Consideration") The *Hein*,

Benedicto, *Musmeci* and *Galilei* references all relate to the Galileo global navigation satellite system (hereafter, "GALILEO") and are therefore discussed together below. Applicant respectfully traverses this ground of rejection.

Independent claims 1 and 22 are directed to navigation systems, independent claim 24 is directed to a navigation receiver and independent claim 33 is directed to a method of operating a navigation system. Claims 1, 22, 24 and 33 all include the limitation of at least one non-geostationary satellite sending out a plurality of signals having integrity information. Claim 1, 22 and 24 further recite a navigation receiver determining the range and position of the satellite and the accuracy (claims 1 and 24) or reliability (claim 22) of said range or position in response to the plurality of signals. Claim 33 recites determining the range and position of the satellite and the accuracy of said range or position in response to the plurality of signals.

In contrast, in GALILEO the accuracy and reliability of the ranges and positions of the GALILEO satellites are not determined in response to signals from the satellite nor by navigations receiver in response to signals from the satellites. Instead, the accuracy and reliability of the positions and ranges of the GALILEO satellites are determined by ground-based facilities. These facilities then send "alerts" to receivers via the GALILEO satellites which broadcast these alerts to the receivers. "GALILEO will provide an integrity message in the global constellation signal that will allow system failures to be reported to the users." *Galilei*, at p. 15 (underscoring added) This is discussed in more detail in *Benedicto*, which states:

> A key asset of GALILEO will be its ability to offer the integrity required for the provision of service guarantees and for the support of safety-of-life applications. It is planned to provide integrity by

> broadcasting integrity alerts to the users. These alerts will indicate when the GALILEO signals are outside specification. The user receiver can then reject signals from satellites to which an alert refers or, using the outputs of the receiver signal processing in conjunction with other receiver techniques, such as RAIM (Receiver Autonomous Integrity Monitoring), reduce the influence that these signals have on the final computed position.
>
> The Integrity Determination System will produce the integrity flags on the basis of measurements taken by a network of Integrity Monitoring Stations distributed over the coverage area.
>
> The Integrity Dissemination System will use the satellites of the GALILEO constellation to broadcast the integrity flags to users. Integrity flags will be up-linked from the Integrity Ground Segment directly to the satellites, for incorporation in the navigation signal-in-space x x x.
>
> The measurements made by the Integrity Monitoring Stations are sent, together with local meteorological and other data, to the Integrity Centre.... Here, an Integrity Processing Facility determines integrity using statistical methods and checks against well-defined integrity barriers, under supervision from the Integrity Control Facility.
>
> The Integrity Messages are then sent via the Integrity Up-Link Stations to selected satellites which incorporate them into the navigation data message streams broadcast to all users.

Benedicto at pages 13-14. See also the diagrams contained in *Musmeci* at pages 12 and 17. Applicant notes that the *Hein* reference is a paper presenting the status of the signal frequencies and signal structures used in GALILEO. (*Hein*, at page 1, 2) and does not disclose the integrity alerts or integrity flags of GALILEO.

In addition, claim 24 as amended recites that the receiver "has integrity-monitoring software for utilizing said integrity information." No such limitation is disclosed or suggested in *Hein*, *Benedicto*, *Musmeci* or *Galilei*.

Based on the foregoing, independent claims 1, 22, 24 and 33 are allowable over *Hein*, *Benedicto*, *Musmeci* and *Galilei*. Dependent claims: 2-21; 23; 25-32, 37-38; and 34-36

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depend respectively from claims 1, 22, 24 and 33 and are allowable over *Hein*, *Benedicto*, *Musmeci* and *Galilei* for the same reasons as their respective parent claims.

For the reasons set forth above, reconsideration of the application and allowance of claims 1-38 are hereby requested by the Applicant.

Respectfully submitted,

April 17, 2006
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The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: MAIL STOP: RCE. Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date set forth below.

April 17, 2006
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